

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A solid-state image-pickup device having:
a sensor array comprising a plurality of sensors; and
a plurality of transfer registers for transferring signal charges from said sensors of said sensor array,
at least one horizontal-horizontal transfer register is formed between said transfer registers for storing temporarily and transferring said signal charges;
wherein an accumulation gate is provided between said sensor array and said transfer registers for reading out signal charges from said sensors at a same time, accumulating said signal charges and allocating said signal charges to said transfer registers and further wherein said plurality of transfer registers include two transfer registers which receive and concurrently transfer said signal charges from at least two rows of pixels of said sensor array.
2. (Original) A solid-state image-pickup device according to claim 1, further comprising a read-out gate provided between said array of sensors and said accumulation gate.
3. (Previously Presented) A solid-state image-pickup device according to claim 1, wherein said accumulation gate creates a difference in electric potential oriented in a direction of transfer.
4. (Previously Presented) A solid-state image-pickup device according to claim 1 wherein signal charges of said sensors are stored in said accumulation gate to be allocated in units of electrical charge each originated by one of said sensors.

5. (Previously Presented) A solid-state image-pickup device according to claim 1 wherein signal charges of said sensors are allocated to respective transfer registers for each odd sensor and each even sensor of said sensor array.

6. (Previously Presented) A method of driving a solid-state image-pickup device having:

a sensor array comprising a plurality of sensors;
a plurality of transfer registers for transferring signal charges from said sensors of said sensor array;

at least one horizontal-horizontal transfer register formed between said transfer registers for storing temporarily and transferring said signal charges;

an accumulation gate provided between said sensor array and said transfer registers,
said method comprising the steps of:

reading out signal charges from all of said sensors in a row closest to said accumulation gate at a same time;

allocating said signal charges of said sensors from said accumulation gate to said transfer registers; and

driving said transfer registers to output said signal charges and further wherein said plurality of transfer registers include two transfer registers which receive and concurrently transfer said signal charges from at least two rows of pixels of said sensor array..

7. (Original) A method of driving a solid-state image-pickup device according to claim 6 whereby said transfer registers are driven at the same time.

8. (Previously Presented) A method of driving a solid-state image-pickup device according to claim 6 whereby signal charges of said sensors are allocated to respective transfer registers for each odd sensor and each even sensor of said sensor array.

9. (Previously Presented) The solid-state image-pickup device according to claim 1, wherein said horizontal-horizontal transfer register has a same number of columns as said transfer registers.

10. (Previously Presented) The method of driving a solid-state image-pickup device according to claim 6, wherein said horizontal-horizontal transfer register has a same number of columns as said transfer registers.

11. (Previously Presented) The solid-state image-pickup device according to claim 2, said accumulation gate and said read-out gate share a common gate electrode.

12. (Previously Presented) The method of driving a solid-state image-pickup device according to claim 6, wherein said step of reading out and said step of allocating are carried out through a common gate electrode.

13. (Previously Presented) A solid-state image-pickup device having:
a sensor array comprising a plurality of sensors; and
a plurality of transfer registers for transferring signal charges from said sensors of said sensor array,

at least one horizontal-horizontal transfer register is formed between said transfer registers for storing temporarily and transferring said signal charges;

wherein an accumulation gate is provided between said sensor array and said transfer registers for reading out signal charges from said sensors at a same time, accumulating said signal charges and allocating said signal charges to said transfer registers, the accumulation gate being directly connected to the sensor array via a readout gate without any vertical transfer registers between the sensor array and the accumulation gate and further wherein said

plurality of transfer registers include two transfer registers which receive and concurrently transfer said signal charges from at least two rows of pixels of said sensor array.

14. (Previously Presented) A method of driving a solid-state image-pickup device having:

a sensor array comprising a plurality of sensors;
a plurality of transfer registers for transferring signal charges from said sensors of said sensor array;
at least one horizontal-horizontal transfer register formed between said transfer registers for storing temporarily and transferring said signal charges;
an accumulation gate provided between said sensor array and said transfer registers, the accumulation gate being directly connected to the sensor array via a readout gate without any vertical transfer registers between the sensor array and the accumulation gate;
said method comprising the steps of:
reading out signal charges from all of said sensors in a row closest to said accumulation gate at a same time;
allocating said signal charges of said sensors from said accumulation gate to said transfer registers; and
driving said transfer registers to output said signal charges and further wherein said plurality of transfer registers include two transfer registers which receive and concurrently transfer said signal charges from at least two rows of pixels of said sensor array.